

Claims

1. A method for optical shape recording and/or evaluation of optically smooth, glossy or optically rough surfaces, characterized in that a photometric stereo method, a deflectometric method and a scattering body (S) are combined so that the positions on the scattering body surface are two-dimensionally encoded.
2. The method as claimed in claim 1, characterized in that the scattering body (S) has the shape of a sphere, an ellipsoid, a rotationally symmetric body or parts thereof.
3. The method as claimed in one of the preceding claims, characterized in that the result of the shape measurement and/or evaluation is provided in the form of a software file.
4. The method as claimed in one of the preceding claims, characterized in that an electronically operating camera (K) is used.
5. The method as claimed in one of the preceding claims, characterized in that a color camera (K) is used.
6. The method as claimed in one of the preceding claims, characterized in that the illumination is color-coded.
7. The method as claimed in one of the preceding claims, characterized in that coherent speckle noise is reduced by using an extended luminous scattering body surface.

8. The method as claimed in one of the preceding claims, characterized in that the local gradient and/or the local normal vector of the surface is visualized and/or electronically evaluated.

9. The method as claimed in one of the preceding claims, characterized in that at least one component of the local gradient and/or the local normal vector of the surface is visualized and/or electronically evaluated.

10. The method as claimed in one of the preceding claims, characterized in that the local gradient and/or the local normal vector is represented by being encoded as a grayscale and/or color shade.

11. The method as claimed in one of the preceding claims, characterized in that at least one component of the local gradient and/or of the local normal vector of the surface is represented by being encoded as a grayscale and/or color shade.

12. A device for optical shape measurement, in particular for carrying out a method as claimed in one of claims 1 to 11, having at least one optical recorder, in particular a camera (K), and at least one light source (1, 2, 3), characterized by a scattering body (S).

13. The device as claimed in claim 12, characterized in that the scattering body (S) at least partially has a spherical, ellipsoid and/or rotationally symmetric structure.

14. The device as claimed in claim 12 or 13, characterized in that a microscope and/or microscope objective is used for the optical imaging.

15. The device as claimed in one of the preceding claims 12 to 14, characterized in that one or more light-emitting diodes are used for the illumination.

16. The device as claimed in one of the preceding claims 12 to 15, characterized in that one or more flash lamps are used for the illumination.